# clinical challenge

Questions for this month's clinical challenge are based on articles in this issue. The style and scope of questions is in keeping with the multiple choice questions of the RACGP Fellowship exam. The quiz is endorsed by the RACGP Quality Improvement and Continuing Professional Development Program and has been allocated 4 Category 2 points per issue. Answers to this clinical challenge are available immediately following successful completion online at www.gplearning.com.au. Clinical challenge quizzes may be completed at any time throughout the 2011–2013 triennium, therefore the previous months answers are not published.

**Sarah Metcalfe**

## Single completion items

CPD

**DIRECTIONS** Each of the questions or incomplete statements below is followed by five suggested answers or completions. Select the most appropriate statement as your answer.

## Case 1

### Mining town GP

You are a GP working and living in a town that hosts a large lead mine.

### Question 1

**When considering blood testing for levels of lead exposure in the town's children, which of the following biochemical properties of lead are most relevant:**

A. absorbed lead can be excreted through the kidneys
B. lead has a very high affinity for porphobilinogen synthase (a haemoglobin synthesis enzyme found in red blood cells)
C. lead has four stable isotopes
D. lead is ingested via the gut using the same divalent cation pump as iron
E. a small amount of blood lead is able to pass to the central nervous system.

### Question 2

**Children are particularly vulnerable to harm from lead exposure. Which of the following does NOT contribute to this effect:**

A. the developing brain has a greater sensitivity to lead exposure
B. children absorb four times more lead than adults
C. exposure is more likely in young children from hand-to-mouth activity
D. children have higher levels of porphobilinogen synthase enzyme within their red blood cells
E. concurrent iron deficiency further increases gut lead absorption.

### Question 3

**You see a mine worker, 28 yeasr of age, for routine blood testing and review. He reports feeling particularly lethargic over the past 2 months. On examination, his BP is 150/94. You order whole blood lead levels, FBE and renal function tests. Which of the following is true:**

A. lead levels in a hair sample are useful to further quantify his recent lead exposure
B. further history regarding his living situation and recreational activities would not be relevant
C. a haemoglobin of 100 would be an unexpected finding in the setting of high lead levels
D. isotope composition analysis allows more accurate determination of a source of excess lead in the blood
E. as he is an adult, there is no concern that excess lead exposure would impact on his cognitive function.

### Question 4

**In regards to modern sources of lead exposure in the general community, which of the following is true:**

A. petrol is still the major source of lead in children's blood in Australia
B. all commercially available paints in Australia are now lead free
C. GPs play a role in educating patients about the potential for harmful lead exposure when burning or sanding paint during renovation of older homes
D. in homes with PVC plumbing, rather than the soldered copper pipes, there is no risk of lead exposure from this source
E. those who work repairing radiators are considered an at risk group.

## Case 2

### Oscar Holden

Amanda presents concerned that her 12 week old son, Oscar, is vomiting frequently after feeds and seems unsettled. He was breastfed for the first 4 weeks with formula top-ups and is now exclusively formula fed. She wonders if he has reflux disease and requires medication.

### Question 5

**If Oscar is gaining weight well, having regular, normal bowel motions and examination is normal, the next most appropriate step in diagnosis would be:**

A. commence a trial of oral ranitidine for presumed gastro-oesophageal refulx disease (GORD)
B. reassure that it is most likely benign gastro-oesophageal reflux and review progress in 4 weeks
C. refer Oscar for combined intraluminal impedance and pH monitoring
D. advise that Oscar trial a soy based formula to see if this settles his symptoms
E. commence a trial of oral proton pump inhibitors (PPIs) as these are known to be more effective than the H2 receptor antagonists.

## Question 6

**Further history reveals that Oscar is having multiple loose bowel motions daily and his weight gain is below the expected range. You decide he needs further investigation. If cow's milk protein allergy (CMPA) is suspected as a cause of Oscar's symptoms, the most definitive diagnostic test to perform would be:**

A. skin prick testing and food specific serum IgE antibody levels
B. gastroscopy and oesophageal biopsy looking for eosinophilic oesophagitis
C. stool for reducing substances
D. strict dietary elimination and re-challenge protocol
E. trial of an oral H2 receptor antagonist.

## Question 7

**You refer to a paediatric gastroenterologist but in the interim, decide a trial of cow's milk protein dietary elimination is appropriate. You advise Amanda:**

A. if Oscar's symptoms improved on an extensively hydrolysed formula and then recurred with re-introduction of a cow's milk based formula, you could be confident that CMPA was contributing to his symptoms
B. she should cease the current formula and trial soy based formula for 4 weeks
C. it's fortunate she has presented as you need prescribe an adrenaline autoinjector in case Oscar has an anaphylactic reaction to the cow's milk protein in his current formula
D. goat's milk would be an appropriate alternative for a dietary elimination trial
E. if she were still fully breastfeeding, CMPA would not even be a consideration.

## Question 8

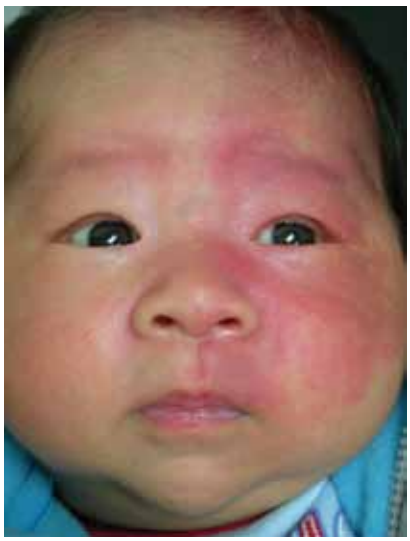
**When considering therapy for GORD in children, which of the following is true:**

A. magnesium or aluminium hydroxide based antacids are appropriate first line therapy in infants
B. H2 receptor antagonists have potential for tolerance with chronic usage
C. there is good evidence for symptom relief with use of oral PPIs in infants with GORD
D. prokinetic agents are routinely used in GORD in children
E. laparoscopic fundoplication surgery is often necessary to control children's symptoms.

## Case 3

### Anna Fernandes

Anna presents with her 6 week old baby boy, Juan. She is concerned about a reddened area on his face, which was present at birth (see below) and wants to know what to do about it. Anna doesn't think it has changed in the past 4 weeks.



## Question 9

**You tell Anna that:**

A. this lesion is commonly known as a 'stork mark' and will most likely go away on its own by the time Juan is 3 years of age
B. you believe this to be a naevus flammeus or port wine stain and, due to its location, it will be important to refer Juan for formal ophthalmological assessment
C. the lesion is most likely a benign vascular tumour that will grow rapidly larger and then slowly resolve
D. you will arrange a biopsy of the lesion so you can accurately differentiate between a haemangioma and vascular malformation
E. there is no need for further assessment but laser is an option for treatment if she has concerns about the appearance of the lesion.

## Question 10

**When examining Juan, you also notice a solitary, 1 cm diameter, darkly pigmented lesion on his back, which Anna confirms was present at birth. What is the most likely diagnosis for this lesion:**

A. café au lait macule
B. dermal melanocytosis
C. congenital melanocytic naevus
D. epidermal naevus
E. infantile haemangioma.

## Question 11

**Concerning congenital melanocytic naevi:**

A. the risk of melanoma developing within these lesions is the same as that for common acquired naevi, regardless of size
B. all children with these lesions must be assessed for neurocutaneous melanosis with MRI
C. they are caused by increased melanin in keratinocytes rather than increased numbers of melanocytes
D. infants with large (>20 cm diameter) CMN need close multidisciplinary follow up due to the increased risk of developing melanoma
E. in the setting of multiple CMN, the diagnosis of neurofibromatosis-1 must be considered.

## Question 12

**Anna is also caring for her 6 month old niece today and you notice an infantile haemangioma on her neck. Anna asks about options for managing this lesion. You tell her:**

A. there is good evidence for the efficacy of intralesional steroids in treating these lesions
B. propranolol is rarely used due to a high risk of adverse cardiac complications
C. it is unlikely to resolve without any treatment
D. oral prednisolone has traditionally been first line therapy for lesions that present a risk of serious complications or disfigurement
E. laser therapy is not an option for this type of lesion.

## Case 4

## Mary McIntyre

Mary comes to visit with 4 day old second child, Lily who was born at term. Yesterday, Lily developed a widespread maculopapular rash, but appeared well. Mary then noted some pustules appearing and became concerned so she has brought Lily in for review. Lily is feeding well and is afebrile with an otherwise normal examination.

### Question 13

**The next most appropriate step in management is:**

A. swab the pustules for microscopy, culture, sensitivity (MCS) and arrange a full blood examination (FBE) and c-reative protein (CRP) to exclude bacterial infection
B. suggest daily aqueous chlorhexidine 0.1% baths and avoid overheating and occlusion of sweat glands
C. reassure Mary that this is most likely erythema toxicum and you expect the rash to fade over the next few days
D. implement use of topical antifungal agents to treat folliculitis caused by malessezia (pityrosporum)
E. explain to Mary that the rash is likely acne related to exposure to androgenic hormones in utero.

### Question 14

**If Lily had presented with linearly arranged papules and pustules you would have considered a diagnosis of:**

A. acropustulosis
B. incontinentia pigmenti
C. milia
D. epidermolysis bullosa
E. neonatal eosinophilic folliculitis.

### Question 15

**Mary returns when Lily is 5 weeks of age as she has developed reddened, greasy areas of skin on her face, neck and nappy area. Lily isn't bothered by them and feeds and sleeps well. At this presentation, your advice includes:**

A. this is most likely the first presentation of eczema (atopic dermatitis)
B. there is a role for sparing use of topical hydrocortisone and an imidazole in the treatment of Lily's condition
C. Lily must have had 'cradle cap' when she was born that was inadequately treated and has now spread
D. you would like to refer Lily for specialist assessment as you are concerned she may have a metabolic condition such as zinc deficiency
E. Mary needs to treat Lily with topical 5% permethrin as well as all other family members and wash all linen in hot water to rid the home of scabies infestation.

### Question 16

**Which of the following features of neonatal skin best explains the potential for drug toxicity:**

A. lack of firm attachment
B. absence of protective flora
C. decreased amounts of hair
D. relatively high body surface area
E. thinness.